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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,374	04/12/2004	Shuichi Ohkubo	NEC WNZ-2665	2825

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EXAMINER	
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ART UNIT	PAPER NUMBER
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/822,374	OHKUBO ET AL.	
	Examiner	Art Unit	
	Nathan Danielsen	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 and 3-11 are pending. Claim 2 was canceled in applicant's amendment filed 16 May 2007.

Response to Amendment

2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 8 and 10 recite the limitation "the predetermined number of samples". There is insufficient antecedent basis for this limitation in the claims. Claims 9 and 11 are rejected as being dependent on an indefinite claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3, 5, 6, and 8-11 are rejected under 35 U.S.C. 103(a) as being obvious over Fuijwara (US Patent Application Publication 2003/0002407), in view of Yousef.

Regarding claim 1, Fujiwara discloses a reproduced signal equalizing method for optical information media in which reproduced signals obtained by irradiating laser light to an optical information

medium are equalized so as to bring a waveform thereof dose to a waveform having a predetermined characteristic, the method comprising the steps of:

sampling reproduced signals in a predetermined cycle (¶ 60);

calculating an equalization coefficient for producing a smallest difference between a target waveform and an equalized waveform by the least square technique by using a predetermined number or more of sampled waveform data (¶ 63); and

equalizing reproduced signals by using the calculated equalization coefficient (¶ 63).

However, Fujiwara fails to disclose the exact number of samples used.

In the same field of endeavor, Yousef suggests that the sampling frequency for generating the samples can be an integer multiple times the number of data clock cycles of data input into an adaptive equalizer (¶s 81-93; where, since applicant has not defined exactly what "a predetermined cycle" is, "a predetermined cycle" is interpreted as the number of reproduced channel bits, each with a channel clock length of T, that would result in applicant's claimed number of samples using the oversampling periods/frequencies of Yousef).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the adaptive equalizer of Fujiwara with that of Yousef, for the purpose of tracking fast channel variations due to a reduced computational complexity and increased computational speed (¶ 27). Further, it would be obvious to one of ordinary skill in the art, using routine experimentation and the application of well-known statistical principles, to optimize the oversampling frequency in order to produce the best possible expected results.

Regarding claim 3, Fujiwara, in view of Yousef, discloses everything claimed, as applied to claim 1. Additionally, Fujiwara discloses where the method further comprises the step of:

inputting the reproduced signals sampled in the predetermined cycle to a Viterbi decoder (¶ 63); and

defining said target waveform as a waveform based on binarized data demodulated by the Viterbi decoder and a partial response waveform (¶ 78).

Regarding claim 5, Fujiwara, in view of Yousef, discloses everything claimed, as applied to claim 1. Additionally, Fujiwara discloses an optical information reproducing apparatus having a function for equalizing reproduced signals by using a reproduced signals equalizing method according to claim 1 (figure 1).

Regarding claim 6, Fujiwara, in view of Yousef, discloses everything claimed, as applied to claim 1. Additionally, Fujiwara discloses where the method further comprises the steps of:

equalizing reproduced signals by using a reproduced signal equalizing method according to claim 1 (see above); and

evaluating quality of the reproduced signals from the equalized reproduced signals and binary identification data (¶s 108-110).

Regarding claims 8 and 10, Fujiwara discloses reproduced signal equalizing methods for optical information media in which reproduced signals obtained by irradiating laser light to an optical information medium are equalized so as to bring a waveform thereof close to a waveform having a predetermined characteristic, the method comprising the steps of, in order to read out information recorded on the optical information medium:

equalizing a predetermined number of samples of the reproduced signals by using a predetermined initial filter coefficient and generating a first equalized signal (¶s 74-77);

identifying the first equalized signal by using a Viterbi decoder and obtaining a provisional identification result therefrom (¶s 78 and 79);

generating a target signal from the provisional identification result and a predetermined partial response waveform (¶s 78 and 79);

calculating a filter coefficient for producing a small difference between the target signal and the reproduced signals about the predetermined number of samples (¶s 78 and 79);

equalizing the reproduced signals by using the calculated filter coefficient and generating a second equalized signal (¶s 78 and 79); and

identifying the second equalized signal by using the Viterbi decoder (¶s 78 and 79).

However, Fujiwara fails to disclose the exact number of samples used.

In the same field of endeavor, Yousef suggests that the sampling frequency for generating the samples can be an integer multiple times the number of data clock cycles of data input into an adaptive equalizer (¶s 81-93, as explained above).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the adaptive equalizer of Fujiwara with that of Yousef, for the purpose of tracking fast channel variations due to a reduced computational complexity and increased computational speed (¶ 27). Further, it would be obvious to one of ordinary skill in the art, using routine experimentation and the application of well-known statistical principles, to optimize the oversampling frequency in order to produce the best possible expected results.

Regarding claims 9 and 11, Fujiwara, in view of Yousef, discloses everything claimed, as applied to claims 1, 8, and 10, respectively. However, Fujiwara fails to disclose the specific number of samples of waveform data used.

In the same field of endeavor, Yousef suggests that the sampling frequency for generating the samples can be an integer multiple times the number of data clock cycles of data input into an adaptive equalizer (¶s 81-93, as explained above).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the adaptive equalizer of Fujiwara with that of Yousef, for the purpose of tracking fast channel variations due to a reduced computational complexity and increased computational speed (¶ 27). Further, it would be obvious to one of ordinary skill in the art, using routine experimentation and the application of well-known statistical principles, to optimize the oversampling frequency in order to produce the best possible expected results.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara, in view of Yousef, and further in view of Miyashita et al (US Patent Application Publication 2002/0064108; hereinafter Miyashita).

Regarding claim 4, Fujiwara, in view of Yousef, discloses everything claimed, as applied to claim 3. However, Fujiwara fails to disclose a specific partial response value.

In the same field of endeavor, Miyashita discloses where a partial response value (1,2,2,2,1) is used as the partial response waveform (¶ 55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the apparatus/method of Fujiwara with the functionality of the apparatus of Miyashita, for the purpose of correctly decoding data using the marks preceding and succeeding the shortest mark (¶ 55).

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara, in view of Yousef, and further in view of Akiyama et al (US Patent Application Publication 20020067670; hereinafter Akiyama).

Regarding claim 7, Fujiwara, in view of Yousef, discloses everything claimed, as applied to claim 6. However, Fujiwara fails to disclose a writing condition adjusting method, wherein a *recording condition* is adjusted based on an evaluation result of a signal quality evaluation method according to claim 6.

In the same field of endeavor, Akiyama discloses where a recording condition is adjusted based on an evaluation result of a signal quality evaluation method according to claim 6 (¶ 47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the apparatus/method of Fujiwara with the functionality of Akiyama, for the purpose of obtaining optimum recording/reproduction conditions (¶ 47).

Response to Arguments

10. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., matrix calculations, as opposed to iterative calculations) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

11. Applicant's arguments, see page 7, filed 06 November 2007, with respect to the rejection(s) of claim(s) 1, 3, 5, 6, and 8-11 under 35 USC § 103(a) have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Fujiwara and Yousef.

Closing Remarks/Comments

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Danielsen whose telephone number is (571) 272-4248. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:00 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nathan Danielsen
11/14/2007

/William Korzuch/
SPE, Art Unit 2627